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Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Implementation of Section 17 of the	)	
Cable Television Consumer Protection	)	
and Competition Act of 1992	)	ET Docket No. 93-7
	)	
Compatibility Between Cable Systems	)	
and Consumer Electronics Equipment	)	

REPLY OF GENERAL INSTRUMENT CORPORATION

General Instrument Corporation ("GI") submits this reply to the Opposition and Comments of the Consumer Electronics Manufacturers Association ("CEMA Comments"), Opposition and Comments of the National Cable Television Association ("NCTA Comments") and the Response of Circuit City Stores, Inc. ("Circuit City Response") submitted July 5, 1996 in response to the Petition for Clarification of General Instrument Corporation ("GI Petition") herein. Pursuant to Sections 1.4(h) and 1.429(f) of the Commission's Rules, this reply is timely filed on July 18, 1996.

Summary

NCTA supports our petition and CEMA has it about right. Our Petition for Clarification in this proceeding was intended to clarify that there are functions in descramblers that are essential functions for the delivery of scrambled programming to the subscriber, and these functions must be allowed to be incorporated into any component descrambler. In two-way cable systems, there are functions that are essential for network control and must be allowed to be incorporated into component

descramblers.

Circuit City, on the other hand, evidently wants the Commission to promulgate rules that would limit the capabilities of cable television systems and weaken cable system security by denying cable systems the right to provide functions that are essential for security and network control. Limiting those capabilities would also introduce inefficiencies into the design and operation of those systems.

The GI Petition

GI submitted its petition to make explicit what has always been the presumption of the industries negotiating the details of the Decoder Interface, namely, that a "minimal" component descrambler must provide certain necessary functions if it is to deliver scrambled programming to the subscriber. These functions include (but need not be limited to):

- communicating with the TV set (*e.g.*, to force tune the TV's tuner to a particular channel;
- communicating with the cable headend (*e.g.*, to receive entitlement messages, or to download security upgrades);
- communicating with the subscriber (*e.g.*, to display a selection menu and receive the subscriber's choice of a pay-per-view program to watch).

In order to assure that cable system security is not weakened, these functions must remain under the control of the cable system operator. The IS-105 Decoder Interface recognizes that these functions are essential to deliver scrambled programming in addressable cable systems, and it incorporates these functions in the component descrambler.[1]

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1 GI Petition, p. 4-5. There are functions that are part of the cable network that some might characterize as not directly related to system security. For example, cable systems today download

We pointed out that in two-way cable systems, there will be essential network control functions that must also stay under the control of the network operator. These include managing the use of upstream bandwidth and isolating one subscriber from another to minimize interference and assure privacy.[2]

CEMA Comments

CEMA supports our request for clarification, recognizing that these functions are needed to support delivery of scrambled programming.[3] Functions such as the downloading of upgraded security software or generation of on-screen selection menus for selection of pay-per-view programs are essential functions of the cable network. We did not intend our petition to provide an exhaustive list of such functions, merely to clarify that there are a class of functions that are properly categorized as network control functions which must remain part of the component descrambler. We believe that CEMA would agree that such functions are properly included in the component descrambler.

CEMA's proposed rule of thumb ("if a feature performs a stand-alone function that is usable and identifiable by a consumer, it should not be offered as part of the component descrambler")[4] is a laudable attempt to establish appropriate criteria but we

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channel maps to cable converters so that the converters will know which channels are carrying which pay-per-view programs; but channel mapping is also used by converters to display the off-air channel of a broadcast station when it is carried on a different channel. It would be absurd to limit component descramblers to receive only the channel maps associated with scrambled channels but prohibit them from receiving the channel maps of off-air stations. Similarly, program guide information may be delivered over the cable system's proprietary data channel, in order to allow a subscriber to order a pay-per-view program. In any case, while we do not believe that Section 624A of the Communications Act imposes any obligations on the delivery of non-video cable services, the Decoder Interface has been designed to support the hardware component units needed for the delivery of such services by parties other than the network operator.

2 GI Petition, p. 10.

3 CEMA Comments, p. 13.

4 *Id.*, p. 14.

think these terms are too vague to be useful. We believe that an appropriate test is that minimal component descramblers should be allowed to supply functions that require no additional hardware circuitry beyond what is needed for security and network control functions. To prohibit the availability of functions that require no incremental circuitry would be economically inefficient and would require duplicate hardware that imposes unnecessary costs on subscribers.

Finally, we again stress that two-way cable systems will need to employ functions related to bandwidth management, interference control and subscriber privacy. Some might argue that these are not needed for security, but they are nonetheless essential network control functions that must remain under the control of cable network operators.[5]

Circuit City Response

Unlike CEMA, Circuit City would have the Commission promulgate rules that would prevent component descramblers from operating properly, limit the range of services that cable systems could offer and weaken the security of addressable cable systems.

Circuit City contends that "the functions and features cited by GI are increasingly performed in circuitry that can be, and is, physically and electrically separate from descrambling circuitry."[6] We disagree. There are in fact no consumer electronics products today that are comparable to the component descramblers that are the subject of the Decoder Interface standard. There are no products that employ the complex loop-through signal path that allow the component descrambler to receive the authorizing

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5 There may be additional functions, totally unrelated to scrambling, that may be required by the terms of a cable operator's franchise agreement.

6 Circuit City Response, p. 6.

data channel before delivering the broadband signal to the TV's tuner. There are no products that use the tuner of the TV set to deliver a single scrambled signal to an external device to be descrambled. And Circuit City has not cited any such products. The Decoder Interface is quite unique and is the product of broad participation in formulating a solution to a recognized problem.

Circuit City has cited DSS, DVB and DAVIC as systems that have separated security from other features.[7] As a general matter, it would be a mistake to use DSS, DVB and DAVIC as models for this process, because of known security problems. While Circuit City claims that the security problems will be resolved by isolating the full security system on a replaceable card, the important point is that, even with replaceable security cards, the functions we outlined in our petition are needed. How will the cards know they are authorized to descramble a program if there is no means to communicate entitlement messages to the cards? How will a subscriber be able to purchase a pay-per-view program if there is no means to display a selection menu on the screen? Circuit City has not shown that these essential functions are unnecessary or can be accomplished in any other way.

Circuit City objects to the cable operator having a monopoly over "on-screen menus, on-screen emergency services, or system-originated messages."[8] GI has never proposed that a cable operator have the sole right to generate on-screen menus and messages. To the contrary, we recognized that contention between multiple decoders seeking to display on-screen messages could become a problem.[9] With respect to emergency messages or system-originated messages, we are mystified about what Circuit

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7 *Id.*

8 *Id.*, p. 7.

9 GI Petition, p. 5.

City has in mind. Since these are inherently messages generated by the cable operator for its customers, it hardly seems plausible that a cable subscriber would have to purchase some other equipment to display these messages on his TV. We do not disagree with the Circuit City model whereby consumers will find alternative sources of features offered through cable systems,[10] but we take strenuous objection to any attempts to constrain the ability of cable or other network operators to offer functions and services.[11]

Circuit City calls for the standardization and disclosure of two-way cable system design, comparable to Part 68 telephone equipment regulations.[12] But as we noted in our petition, even in the telephony context the Commission has recognized that the same kinds of network transmission and control functions at issue here may be accomplished by carrier-owned rather than customer-owned equipment, and that network transmission equipment warrants regulatory treatment that is different from the Part 68 regulatory treatment of telephone terminal equipment.[13] In two-way cable systems, the functions that must be allowed to be provided in the component descrambler under the control of the network operator are the same kinds of network transmission functions that in telephony may be carrier-owned even if located at a customer premises.

Circuit City would apparently prohibit billing messages from originating in the component descrambler.[14] But allowing the customer to own the circuitry that generates billing records would invite a new kind of piracy, namely, circuitry that creates false billing records that result in lower charges than the customer might otherwise be obligated for. This is precisely the kind of jeopardizing of security that is strictly

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10 Circuit City Petition, p. 8.

11 We do question the economic viability of the competitive supply of equipment to display emergency messages, if that is what Circuit City is suggesting.

12 *Id.*, p. 8.

13 GI Petition, p. 11.

14 Circuit City Response, p. 9.

prohibited under Section 304 of the Telecommunications Act of 1996.[15]

Circuit City would also require that communications between the cable headend and the component descrambler would somehow be mediated by generic feature modules rather than within the component descrambler itself.[16] We do not see how this can be accomplished without weakening security, since the proprietary data channel in an addressable cable system is an essential element of system security, and the message protocols and other details of that channel are not disclosed for security reasons.

Circuit City claims that a minor change in IS-105, "simply...designating the appropriate meanings for sequences of data bits that are unused or currently undefined," will allow it to support a descrambling-only component descrambler.[17] We look forward to reviewing Circuit City's detailed proposals in the Decoder Interface Subcommittee.

Circuit City has properly quoted but then misinterpreted the definitions now contained in the Decoder Interface IS-105.1 draft standard.[18] A "decoder" may contain descrambling circuitry, feature circuitry or both. If it contains descrambling circuitry, it is a "descrambler." If it contains only feature circuitry, it is a "feature unit." If it contains both descrambling circuitry and feature circuitry, it is a "descrambler." "Feature units" may not contain descrambling circuitry, but "descramblers" may contain feature circuitry. In fact, the Commission has recently reconfirmed that descrambler modules may contain both descrambling and feature circuitry. "[W]e see no need to preclude cable operators

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15 This not the place to debate the provisions of Section 304; there will be ample opportunity in the Commission's proceeding on that section. But is clear from the filing in this matter and elsewhere that Circuit City claims a proprietary right to interpret that section and that it offers the most expansive possible reading of Sec. 304. We suspect that we will not agree with that reading, either as a matter of law or as a matter of policy.

16 *Id.*, p. 11.

17 *Id.*, p. 12.

18 *Id.*, p. 13.

from also incorporating signal access control functions in multi-function component devices that connect to the Decoder Interface connector."[19] Thus, it is clear that cable operators may integrate "feature" circuitry into component descramblers, so long as they also offer component descramblers that do not have feature circuitry to those customers that request such units. The clarification that we seek here is a determination that the communications and control functions needed to support descrambling and to control network access should not be classed as "feature" circuitry.

Circuit City argues that the EIA "descrambler only" interface was to have been a subset of the Decoder Interface.[20] We invite Circuit City to create a workable interface that satisfies this description. We question whether it can be done and still support pay-per-view programming in addressable cable systems of varying design, and do this in a manner that does not jeopardize security.

Conclusion

The Commission should clarify that that there are functions in descramblers that are essential functions for the delivery of scrambled programming to the subscriber and for network control, and these functions must be allowed to be incorporated into any component descrambler. The Commission may choose to do this by simply adopting the

19 11 FCC Rcd 4121 at para. 38.
20 Circuit City Response, p. 14.

Decoder Interface, when final details are worked out, since what we request has always been an underlying assumption of the industries that have developed the interface.

Respectfully submitted,

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July 18, 1996

CERTIFICATE OF SERVICE

I, Gerrit Craig Cone, certify that I Have this 18th day of July 1996, caused to be delivered via first-class, postage prepaid mail, a true and correct copy of the foregoing Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992: Compatibility Between Cable Systems and Consumer Electronic Equipment **ET 93-7**,

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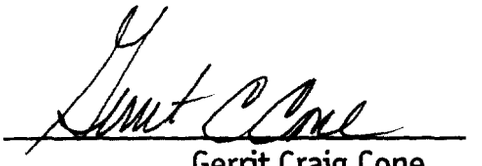

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